IN THE CLAIMS:

1. (Currently Amended) A hearing aid, comprising:

a transducer implantable within a patient to stimulate a component of an auditory system;

an implantable microphone to process acoustic sounds and generate frequency responses representative of the acoustic sounds; and

a signal processor to process at least one feedback frequency response from the microphone to:

identify changes between the least one feedback frequency response and a previously determined frequency response;

generate at least one test parameter based on said changes; and

use the at least one test parameter to change acoustic frequency responses of the microphone generated in response to acoustic sounds~~determine at least one operational characteristic of the microphone,~~; and

wherein the feedback frequency response is generated by the microphone in response to an acoustic feedback sound generated in conjunction with actuation of said transducer in response to at least one test signal.

2. (Previously Presented) The hearing aid of Claim 1 comprising:

a test signal generator to generate and provide the at least one test signal to the transducer, wherein the at least one test signal causes the transducer to stimulate the component of the auditory system and generate the acoustic feedback sound.

3. (Previously Presented) The hearing aid of Claim 2 wherein the signal processor is configured to generate and provide the at least one test signal to the transducer.

4. (Previously Presented) The hearing aid of Claim 3 wherein the at least one test signal is provided at a predetermined frequency to generate the acoustic feedback sound at a predetermined tone.

5. (Previously Presented) The hearing aid of Claim 3 wherein the at least one test signal is swept across a predetermined frequency range to generate the acoustic feedback sound at a plurality of predetermined tones.

6. (Original) The hearing aid of Claim 3 wherein the at least one test signal comprises:

one of noise and pseudorandom noise.

7. (Original) The hearing aid of Claim 3 wherein the at least one test signal comprises:

at least one chirp.

8. (Cancelled).

9. (Currently Amended) The hearing aid of Claim ~~8~~1 wherein the signal processor is configured to use the at least one test parameter to generate drive signals for the transducer that compensate for the changes between ~~changing characteristics of~~ the acoustic frequency responses of the microphone.

10. (Currently Amended) The hearing aid system of Claim ~~9~~ 8 wherein the at least one test parameter comprises:

at least one delta frequency representative of a difference between the at least one feedback frequency response and a calibration frequency response.

11. (Original) The hearing aid system of Claim 10 wherein the at least one test parameter comprises:

at least one delta frequency representative of a difference between an average of a plurality of feedback frequency responses and the calibration frequency response.

12. (Currently Amended) The hearing aid system of Claim ~~11~~10 wherein the signal processor is configured to use the at least one delta frequency to generate drive signals for the transducer that compensate for the changing characteristics of the ~~acoustic~~ frequency responses according to prescriptive parameters for the patient.

13. (Original) The hearing aid system of Claim 10 wherein the signal processor includes an upper and lower threshold frequency response, and

if the feedback frequency response is within the upper and lower threshold frequency response, the signal processor processes the feedback frequency response to generate the at least one delta frequency, and

if the feedback frequency response is outside the upper and lower threshold frequency response, the signal processor continues to use a previous feedback frequency response.

14. (Original) The hearing aid system of Claim 1 wherein the signal processor is a digital signal processor.

15. (Currently Amended) In a hearing aid, a method of compensating for changing characteristics of frequency responses generated by an implantable microphone in response to an acoustic input, the method comprising:

conducting a test session to determine ~~changes in the frequency responses~~ a current frequency response of the microphone;

comparing the current frequency response to a previously determined frequency response of the microphone to identify differences in the frequency responses;

generating at least one test parameter representative of the ~~changes~~ differences in the frequency responses of the microphone; and

using the at least one test parameter to generate drive signals for a transducer that compensate for the ~~changes~~ differences in the frequency responses of the microphone.

16. (Currently Amended) The method of Claim 15 wherein the step of conducting the test session comprises the steps of:

generating and providing a test signal to a transducer;

driving the transducer with the test signal to generate acoustic feedback;

detecting the acoustic feedback in the microphone;

generating ~~a~~ the current feedback frequency response in the microphone; and

comparing the current feedback frequency response with the test signal to determine the at least one test parameter.

17. (Currently Amended) The method of Claim ~~13~~16 wherein ~~the step of~~ generating and providing the test signal comprises:

generating and providing the test signal at a predetermined frequency to generate the acoustic feedback sound at a predetermined tone.

18. (Currently Amended) The method of Claim ~~15~~ 16 wherein the step of generating and providing the test signal comprises:

generating and providing the test signal at a plurality of predetermined frequencies to generate the acoustic feedback sound at a plurality of predetermined tones.

19. (Currently Amended) The method of Claim ~~16~~ 15 further comprising: ~~wherein the step of generating the at least one test parameter comprises:~~

computing at least one delta frequency representative of a difference between the current feedback frequency response and ~~a calibration frequency response~~ the previously determined frequency response.

20. (Currently Amended) The method of Claim ~~18~~15 further comprising: ~~wherein the step of generating the at least one test parameter comprises:~~

computing at least one delta frequency representative of a difference between an average of a plurality of feedback frequency responses and the previously determined frequency response. ~~calibration frequency response.~~

21. (Currently Amended) The method of Clam 19 further comprising:

~~wherein the step of using the at least one test parameter~~ using the delta frequency response to generate drive signals for the transducer that compensate for the changes in the frequency responses of the microphone, wherein using the delta frequency comprises~~:~~

processing acoustic frequency responses from the microphone using the at least one delta frequency.

22. (Currently Amended) The method of Claim 19 comprising:

comparing the current feedback frequency response to an upper and lower threshold frequency response, and

if the current feedback frequency response is within the upper and lower threshold frequency response, using the current feedback frequency response to generate the at least one delta frequency, and

if the current feedback frequency response is outside the upper and lower threshold frequency response, using a previous feedback frequency response.

23. (Currently Amended) A hearing aid comprising:

a transducer implantable within a patient to stimulate a component of an auditory system;

a microphone to process acoustic sounds and generate frequency responses; and

a signal processor to process at least one feedback frequency response from the microphone, compare the at least one feedback frequency response with a reference frequency response to generate drive signals for the transducer that compensate for changed characteristics of the microphone frequency responses, wherein the at least one feedback frequency response is generated by the microphone in response to an acoustic feedback sound generated in conjunction with actuation of said transducer in response to at least one test signal.

24. (Previously Presented) The hearing aid of Claim 23 comprising:

a test signal generator to generate and provide the at least one test signal to the transducer that causes the transducer to stimulate the component of the auditory system and generate the acoustic feedback sound.

25. (Previously Presented) The hearing aid of Claim 23 wherein the signal processor is configured to generate and provide the at least one test signal to the transducer that causes the transducer to stimulate the component of the auditory system and generate the acoustic feedback sound.

26. (Previously Presented) The hearing aid of Claim 24 wherein the at least one test signal is provided at a predetermined frequency to generate the acoustic feedback sound at a predetermined tone.

27. (Previously Presented) The hearing aid of Claim 24 wherein the at least one test signal is swept across a predetermined frequency range to generate the acoustic feedback sound at a plurality of predetermined tones.

28. (Original) The hearing aid of Claim 24 wherein the at least one test signal is one of noise and pseudorandom noise.

29. (Original) The hearing aid of Claim 24 wherein the at least one test signal is a chirp.

30. (Currently Amended) The hearing aid system of Claim 23 wherein the processor is operative to determine ~~at least one test parameter comprises:~~

at least one delta frequency representative of a difference between the feedback frequency response and a calibration frequency response.

31. (Currently Amended) The hearing aid system of Claim ~~23~~ 30 wherein the a processor is operative to determine ~~t least one test parameter comprises:~~

at least one delta frequency representative of a difference between an average of a plurality of feedback frequency responses and the calibration frequency response.

32. (Original) The hearing aid system of Claim 30 wherein the signal processor is configured to use the at least one delta frequency to generate the drive signals for the transducer that compensate for the changing characteristics of the frequency responses according to prescriptive parameters for the patient.

33. (Original) The hearing aid system of Claim 30 wherein the signal processor includes an upper and lower threshold frequency response, and

if the feedback frequency response is within the upper and lower threshold frequency response, the signal processor processes the feedback frequency response to generate the at least one delta frequency, and

if the feedback frequency response is outside the upper and lower threshold frequency response, the signal processor continues to use a previous feedback frequency response.

34. (Original) The hearing aid system of Claim 23 wherein the signal processor is a digital signal processor.

35-47. (Cancelled)